

and "threatened," and "endangered" and "rare," respectively) but federal ratings (also "endangered" and "threatened") are lumped into merely "listed."

Original plans for the revision were supposed to have included listings of rare taxa by county and by quadrangle of known occurrence. Neither is present. Especially the latter would make many inquiries unnecessary and would be easily producible if the information is still computerized as was the case with the earlier inventory. Perhaps it can be issued with other addenda.

The index is a useful addition. A method of footnoting the plants listed in Appendix 1 so as to distinguish among the various categories lumped therein would have been helpful.—ALICE Q. HOWARD, University Herbarium, Department of Botany, University of California, Berkeley 94720.

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*A Taxonomic Study of the Ranunculus hispidus Michaux Complex in the Western Hemisphere.* By THOMAS DUNCAN. Univ. California Publ. Bot. 77:1-125, 70 Figs. Univ. California Press, Berkeley. 1980. ISBN 0-520-09617-7. \$7.00.

Past classifications of this widespread group have been plagued by similarities and overlaps of leaf-shapes previously used as primary criteria for identification. As in most other buttercups, not only does leaf-shape in this group vary widely among individuals of the same species but even among leaves on the same plant. Duncan has sought a new classification, widening the range of characters used and applying new statistical techniques aimed at giving a more strictly objective basis for subdividing the complex.

After a brief outline of data-gathering methods, the monograph provides a full discussion of each of the characters to be used, some for the first time. A lucid account ensues of three different computer-assisted approaches that were tried out—cluster analysis, sum-of-fractions analysis, and principal-components analysis. A logical step-by-step procedure shows how a particular "similarity value" was selected to satisfy best Duncan's chosen species distinction (discontinuity in at least three characters). The classification that emerges from application of the first two computer-assisted approaches was tested out to Duncan's satisfaction on many thousands of herbarium specimens. Its superior discriminatory value over more traditional treatments by Benson and by Lourteig appears to be quite clear. The third computer-assisted approach, principal-components analysis, was found in this study to be much less useful than the first two. As to plant characteristics, neither leaf-shape measurements nor leaf-flavonoid compounds turned out to be useful in classifying this group, and even chromosome numbers, falling into only two classes ( $2n = 32$  or  $64$ ), were found irrelevant taxonomically.

A large section of the monograph is devoted to a standard descriptive revision. Each of the 20 taxa in this new treatment is also illustrated and mapped and provided with an extensive commentary that clarifies many otherwise unanswered questions. The diagnostic key attempts to avoid developmentally- and genetically-labile leaf characters, which tended to weaken previous classifications. Receptacle shape, stolons, and rhizomes are among new features helping discriminate taxa. An extensive appendix of background data contains 20 pages of illustrations of leaf-shape variations in each species, fully vindicating the author's rejection of them as usable taxonomic features.

Although up-to-the-minute numerical methods of data analysis have been used in this revision, its underlying assumptions seem to this reviewer to be curiously old-fashioned. It provides a vital preliminary step to a much more biosystematically comprehensive operation yet to be carried out. Conspicuously missing are the experimental data that for half a century have been recognized as inescapable components of contemporary systematic investigations in both plants and animals. Where are the breeding tests, transplant experiments, mass geographic samplings, and cytogenetic data crucial to evaluation of stages in the evolutionary process?

But even without these other kinds of evidence, Duncan's monograph, as a study using new methods of objective phenetic analysis, is an impressive foundation stone for

more complete studies in the future. Can we dare hope that such efforts, and the funding such extensive studies require, will be sustained for building upon such excellent morphological preliminaries as this?—FULTON FISHER, Department of Biological Sciences, Simon Fraser University, Burnaby, British Columbia, Canada V5A 1S6

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*Flora Americae Septentrionalis*. By FREDERICK PURSH. xxiv + 751 p., illus. 1814 [Dec 1813]. Reprint, 1979, introduced (117 p.) and edited by JOSEPH EWAN. J. Cramer, Vaduz, Liechtenstein. Available from Lubrecht and Cramer, RFD 1, Box 227, Monticello, NY 12701. ISBN 3-7682-1242-4. \$60.00.

In his pithy introduction, Ewan provides synopses of the place of Pursh's *Flora* in botanical history, Pursh's collecting activities, other collectors and specimen sources, conditions of publication of the *Flora*, and initial response of the botanical community. In addition, there is a brief chronology of Pursh's life, a gazetteer of localities, and a very welcome annotated list of the 500 to 600 species and varieties that were first published in the *Flora*.

The inventory is alphabetical by genus, then by species, and the annotations provide (so far as known): page in the *Flora*, whereabouts of type or "authentic" specimens, commentary (including references to pertinent publications), and accepted name (if original is generally relegated to synonymy). This invaluable list seems to be as comprehensive as is practicable and represents nearly 30 years of gleanings from American and European libraries and herbaria.

The *Flora* itself treats some 3076 species (fide Ewan). It was the "first account of North American plants to include the Pacific Northwest." Among the "novelties" were plants then known only from the Lewis and Clark collections, including original accounts of *Lewisia rediviva* and *Clarkia pulchella*.—JOHN L. STROTHER, University Herbarium, Department of Botany, University of California, Berkeley 94720.

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## TRANSITION

FRANK WALTON GOULD

*Frank Walton Gould*, Distinguished Professor Emeritus of Grass Systematics and former curator of the S. M. Tracy Herbarium at Texas A&M University died on 11 March 1981 in Austin, Texas.

Gould was born in Mayville, North Dakota on 25 July 1913. He earned his bachelor's degree from Northern Illinois University, a master's degree from the University of Wisconsin, and Ph.D. degree in botany from the University of California. He taught biology at Dixie Junior College, St. George, Utah from 1941–1942, and at Compton Junior College, Compton, California from 1942–1944. He then worked as a botanist at the University of Arizona from 1944–1949.

In 1949 Gould moved into a taxonomic position at Texas A&M University. He served as curator of the S. M. Tracy Herbarium until August 1979, when he retired. During his tenure, he built the herbarium into one of the most respected such facilities in the United States. Gould was a world renowned grass systematist and had completed teaching and research assignments in Mexico, Costa Rica, the Dominican Republic, Brazil, Puerto Rico, Sri Lanka, and England. His research projects with leading herbaria resulted in more than 80 definitive treatments of grasses that are recognized world wide.

Frank W. Gould authored the books *Grasses of the Southwestern United States* in 1959, *Grasses of the Texas Coastal Bend* in 1965, *Grass Systematics* in 1968, *The Grasses of Texas* in 1975, and *Common Texas Grasses* in 1978. He also had completed a book on the *Grasses of Baja California* that will be published next year. At the time of his death he was writing a book on the grasses of Mexico.—STEPHAN L. HATCH, Curator of the Tracy Herbarium, Texas A&M University, College Station 77843.